FLEXIBLE DISPLAY INPUT DEVICE

BACKGROUND

[0001] The present invention relates to flexible displays, and more specifically, to user inputs and flexible displays.

[0002] Flexible displays may include any number of display devices that are generally thin and flexible such that a user may bend the display with their hands. Such displays may be resilient such that the displays typically return to their original planar shape following the application of force to the displays. Other displays may be foldable such that the displays may be placed in the pocket of a user.

[0003] Wearable devices such as, glasses that augment reality may be worn by a user. Wearable glasses devices may dynamically present visual content or graphical content to a user. In typical operation such wearable devices often include a camera that sends data to a processor. The processor processes the data and determines how to present visual content to a user that is appropriate for the user's environment.

SUMMARY

[0004] According to an embodiment of the present invention, a method for controlling a flexible display system comprises, receiving a signal indicating a deformation of a flexible display, processing the signal to identify the deformation of the flexible display, and initiating a software routine associated with the identified deformation of the flexible display.

[0005] According to another embodiment of the present invention, a method for controlling a flexible display system comprises receiving an image of a flexible display, processing the image to identify a deformation of the flexible display, initiating a software routine associated with the identified deformation of the flexible display.

[0006] A flexible display system comprising, a flexible display a processor communicatively connected to the flexible display, the processor operative to receive a signal indicating a deformation of a flexible display, process the signal to identify the deformation of the flexible display, and initiate a software routine associated with the identified deformation of the flexible display.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 illustrates a block diagram of an exemplary system.

[0008] FIG. 2 illustrates a front view of an exemplary embodiment of a flexible display.

[0009] FIG. 3 illustrates the flexible display bent into a concave position.

[0010] FIG. 4 illustrates the flexible display bent into a convex position.

[0011] FIG. 5 illustrates another exemplary operation of the flexible display.

[0012] FIG. 6A illustrates an exemplary embodiment of a list of content on a flexible display.

[0013] FIG. 6B illustrates an exemplary embodiment of a list of content on a flexible display.

[0014] FIG. 7 illustrates another exemplary embodiment of a display system

[0015] FIG. 8 illustrates a block diagram of an exemplary method of operation of the flexible display system of FIG. 1.

[0016] FIG. 9 illustrates a block diagram of another exemplary method of operation fo the flexible display system of FIG. 1.

DETAILED DESCRIPTION

[0017] Flexible display devices may include any type of display that may be bent while displaying graphical information to a user. In an embodiment described below, a flexible display is bendable when a force is applied to the display, and has a resiliency such that the display may return to a substantially planar or unbent orientation when force is removed from the display. In an alternate embodiment, the display may be foldable similar to a sheet of plastic or paper. In other exemplary embodiments, the flexible display may be integrated in operation or in the system with a wearable device.

[0018] In operation, a flexible display may receive user input by, for example, touching or swiping, or by being bent, twisted, or folded, or in other ways deformed.

[0019] FIG. 1 illustrates a block diagram of an exemplary system 100. The system 100 includes a processor 102 that is communicatively connected to a memory device 104. The processor 102 may be communicatively connected to an input device 106 such as, for example, a button or microphone. The processor 102 is communicatively connected to a flexible display 202. In some exemplary embodiments, the processor 102 may also be communicatively connected to a wearable device 108 that may include, for example, glasses having a portion that is operative to present graphical images to a user. The wearable device 108 may also include a camera that is operative to send images to the processor 102.

[0020] FIG. 2 illustrates a front view of an exemplary embodiment of a flexible display 202. The flexible display 202 has a display surface 201 that is operative to display graphical images to a user. The flexible display 202 may include an array of sensors 205 positioned, for example, around edges of the flexible display 202 that are operative to sense the shape of the flexible display 202. In the illustrated embodiment, the flexible display 202 is operative to send and receive signals to and from the processor 102 (of FIG. 1). The signals sent to the processor 102 may include data that includes a current shape of the flexible display 202.

[0021] FIG. 3 illustrates the flexible display 202 while the flexible display 202 is being bent or deformed into a concave position. A rear surface 203 of the flexible display 202 is deformed into a convex shape. The arrow 301 indicates the direction the user 204 is facing relative to the flexible display 202.

[0022] FIG. 4 illustrates the flexible display 202 while the flexible display 202 is being bent into a convex position. The arrow 302 indicates the direction the user is facing relative to the flexible display 202.

[0023] In operation, the sensors 205 of the flexible display 202 sense the position or curve of the display and send a signal to the processor 102 (of FIG. 1). In this regard, the processor 102 may determine an amount of curve, whether the curve is convex or concave, and a rate of the change in the curvature or deformation of the flexible display 202. Such signals may be used as inputs to the processor 102. For example, if the user 204 bends the display in a convex shape, the sensors 205 send a signal indicative of the convex shape to the processor 102, the processor 102 may process the signal as a user input and use the user input to control software or hardware functions controlled by the processor